Assessment of Employment and Unemployment Statistics for Nonmetropolitan Areas

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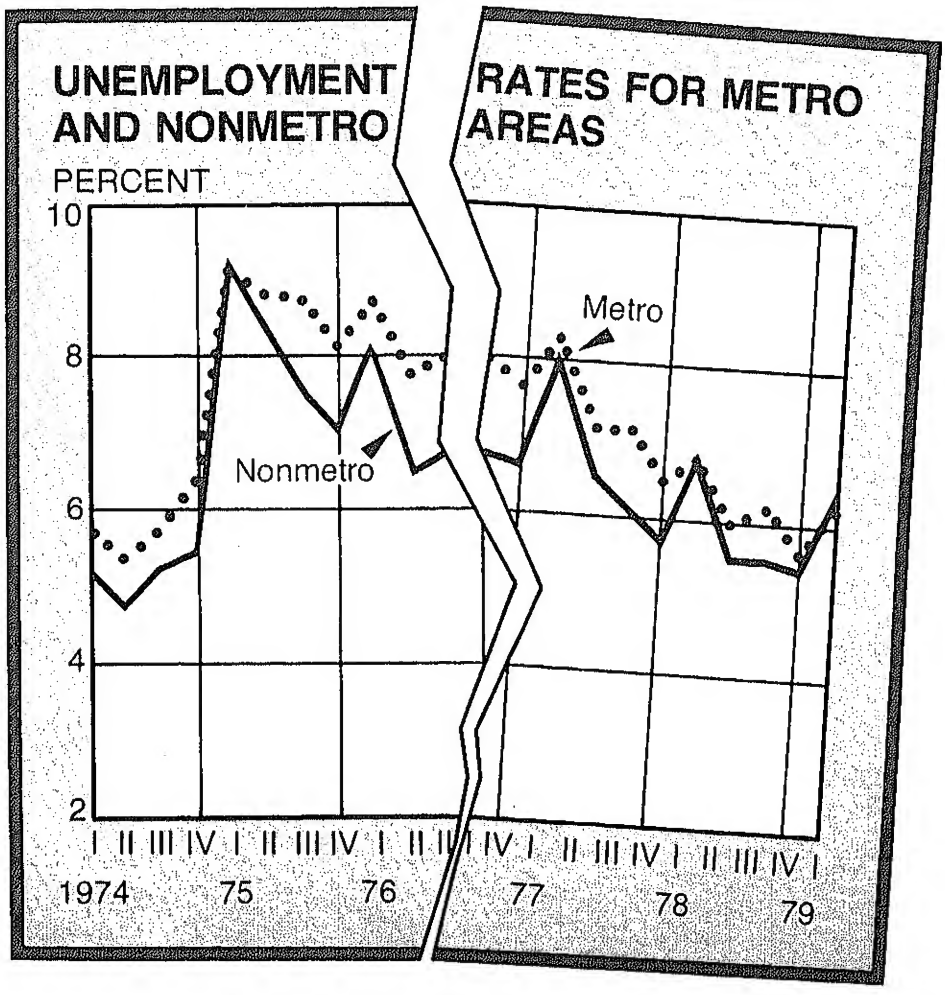

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ABSTRACT

Low levels of data reliability, inadequate economic concepts, and metro-nonmetro differences in economic structure result in labor force statistics that frequently portray conditions in nonmetro areas to be better than they actually are. Unemployment statistics are used to allocate billions of Federal dollars to State and local governments for economic development, manpower, and other programs, so inaccurate statistics can result in an underallocation of funds to nonmetro areas. This report examines some of the factors that contribute to this problem, focusing specifically on those affecting labor force statistics.

Keywords: Unemployment statistics, Underemployment, Economic hardship, Nonmetropolitan areas, Rural areas, Economic structure, Labor force.

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GLOSSARY OF TERMS

Discouraged worker: An employed person who has ceased looking for work in the belief that no jobs are available. By definition, these persons are not considered part of the labor force.

Involuntary part-time employment (also termed part-time employment for economic reasons): A subclassification of employment where a person who is employed part-time desires full time employment.

Labor force participation rate: The proportion of the civilian noninstitutional population that is either employed or actively seeking employment.

Metropolitan area: All counties that are included in Standard Metropolitan Statistical Areas (SMSA). The definition used throughout this report corresponds to the 243 SMSA's recognized at the time of the 1970 census.

Nonmetropolitan area: All counties outside metropolitan areas.

Subemployment (also termed underemployment): The state of being employed to less than one's full capacity. These are subjective terms that have numerous definitions. The Bureau of Labor Statistics has defined two particular indexes, U-6 and U-7. See 7, 9, 17 in reference section for other examples.

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HIGHLIGHTS

Unemployment rates, which have come to be interpreted as proxies for the level of a region's economic well-being, form the basis for the allocation of billions of Federal dollars ($16 billion in 1976) to State and local jurisdictions for development of economic and human resources.

Two fallacious assumptions, however, render this use of unemployment statistics inappropppriate and suggest that the statistics, in being so used, may seriously misallocate Federal funds. The first assumption is that a family's economic position is dependent on the employment of one family member. A family's economic position is dependent on the family's earnings from all sources, not just the income of one individual. The second assumption is that employment signifies adequate earnings. But many individuals can find only part-time employment (at less than full wages), and many, especially in nonmetropolitan areas, can find employment only in industries and occupations that pay low wages.

A comparison of metropolitan and nonmetropolitan unemployment rates for 1972 indicates that unemployment rates in the two areas were similar. However, when the figures are adjusted to include underemployment and earnings, the nonmetro labor force is significantly disadvantaged.

An individual's earnings are affected by several factors, including the types of industries and the types of occupations in the local economy. The nonmetro labor force is disproportionally employed in low-earnings industries and occupations. Thus, on average, a nonmetro worker employed full-time earns less than a metro full-time worker.

Patterns of worker discouragement and involuntary part-time employment differ between metro and nonmetro areas. The industries and occupations available further differentiate the two areas. The current measures of labor market performance (the unemployment rate, for example) do not account for these differences. The results are inaccurate and regionally inconsistent assessments of labor market conditions.

ASSESSMENT OF EMPLOYMENT AND UNEMPLOYMENT STATISTICS FOR NONMETROPOLITAN AREAS

Sigurd R. Nilsen, Economist

INTRODUCTION

Over $16 billion in Federal funds were allocated for human resource and economic development programs in 1976 on the basis of unemployment statistics (10). 1/ Despite frequent criticisms of the accuracy of these statistics for such a purpose, the unemployment rate remains a widely used statistic. Recent changes in the composition of the labor force and increased awareness of differences among local labor markets have helped to highlight the inadequacies of the unemployment rate.

This report describes those inadequacies in three areas: (1) The conceptual and definitional problems associated with employment and unemployment measures, (2) structural differences between metropolitan and nonmetropolitan labor markets that affect the interpretation of the statistics, and (3) the adequacy of employment statistics as allocators of funds for economic and human resource development programs. The major purpose of the report is to elucidate the implications of these issues for nonmetropolitan areas. Specifically, the report addresses the following questions: Do measures of labor market performance accurately reflect conditions in nonmetropolitan areas? What are the implications for the distribution of funding based on these statistics?

The evaluation of the measures of labor market performance for conceptual consistency and the analysis of factors that differentiate nonmetropolitan from metropolitan labor markets present a unified picture of the forces that result in problems with nonmetropolitan labor market statistics. This report seeks to provide a conceptual evaluation of how labor market performance indices implicitly, yet systematically, underestimate unemployment in nonmetropolitan areas.

EMPLOYMENT MEASURES AND ECONOMIC WELL-BEING

The labor market concepts upon which the official unemployment rate and a series of corollary indices are based were developed during the late thirties and early forties. Since then, bases of these [illegible] validi[illegible] been the [illegible] nonmetro and regional differences in labor market characteristics, and the changing composition of the labor force. Criticism

1/ Underlined numbers in parentheses indicate items in References section at the end of the report.

leveled at the unemployment rate in the late sixties and early seventies skirted the issue of an outdated conceptual base and instead concentrated on formulating alternative indices to measure underemployment, subemployment, and economic hardship (7, 17). This direction, taken by many critics, implicitly supported the unemployment rate as a national indicator of labor market performance, while explicitly dismissing it as an index of economic well-being.

Indices of Labor Market Performance

Indices of labor market performance indicate a labor market's ability to provide employment to those seeking work. These measures are a function of the number of jobs available and the number of persons wanting to work. Labor market performance measures are distinguished from indices of economic hardship, which provide an indication of economic well-being. Measures of well-being may be a function of jobs and workers; more important, such measures contain factors relating to an individual's or a family's economic status. The principal distinction between these two classes of indices is that labor market performance indices must make assumptions about the relationship between economic and employment status in order to provide inferences regarding economic well-being. The economic hardship indices, on the other hand, provide direct measures of economic well-being, such as family income adjusted for family size.

The Bureau of Labor Statistics (BLS) of the U.S. Department of Labor produces the Government's unemployment statistics. The most widely recognized measure it produces is the monthly unemployment rate based on data collected monthly from households by the Current Population Survey (CPS), Bureau of the Census. However, other measures of labor market performance are also produced by BLS. A series of seven measures, including the unemployment rate, were recently presented by BLS as "representative of differing bodies of opinion about the meaning and measurement of unemployment . . ." (14).

These measures are:

- U-1: rate of long-term unemployment,
- U-2: rate of unemployment due to job loss,
- U-3: rate of household head unemployment, 2/
- U-4: rate of unemployment for full-time job seekers,
- U-5: official unemployment rate,
- U-6: rate of subemployment, and
- U-7: rate of subemployment, including discouraged workers in the labor force.

These indices are sequentially numbered, but there is no significance to their order. The primary difference between U-5, the official unemployment rate, and U-1 through U-4 is that the populations differ. In some cases, both the numerator and the denominator of the ratio are from population subgroups (for example, U-3 is restricted to household heads), while in others just the numerator is restricted (so that U-1, for example, counts only those unemployed for 15 weeks or longer). The last two indices, U-6 and U-7, measure underemployment. In the ensuing discussion, the official unemployment rate (U-5) is discussed first because it is the most commonly used; the other indices are then addressed in numerical order.

Official unemployment rate.-- The official unemployment rate (U-5) shows the total number of unemployed persons, 16 years old and over, actively seeking work as a percentage of the civilian, noninstitutional labor force 16 years old and over. The problems of concept and definition embodied in this index are indicative of the problems associated with other measures of labor market performance. That is, the various BLS indices all use common definitions of the labor force, employment, and unemployment. The problems associated with omission of certain groups from the labor force or inaccurate specification of labor force status hold true for this and other indices.

The most prominent group excluded from the labor force is that of discouraged workers. This group consists of those individuals who want work, but who

2/ Beginning in January 1978, BLS changed the formulation of U-3 to be the unemployment rate for those 25 years old and over. The analysis in this report is based on the old definition because more recent data, after the change in definition, are not yet available.

have ceased looking because they believe they cannot find jobs. BLS's current definition of discouragement has been criticized as being both too permissive and too restrictive. Some believe that the CPS estimates of discouraged workers are too high because many people are included who have no commitment to the labor force; others feel that the CPS underestimates the level of discouraged workers. In addition, the data on discouragement are criticized as not being sufficiently rigorous statistically, since they are based on information collected from only 25 percent of the CPS sample (6). It will, therefore, be necessary to conduct further study and evaluation of worker discouragement before specific recommendations can be made regarding the treatment of this group in unemployment statistics.

Another factor that is seldom evaluated for its effect on the conceptual consistency of the unemployment rate is the treatment of the self-employed. The inclusion of the self-employed in the unemployment rate creates problems of interpretation.

Self-employment may be either a full-time permanent activity, a secondary activity, or an emergency response to unemployment, but it is considered in all cases as employment. Little is known about the variability of the self-employed income stream, but it is plausible that there are wide cyclical or seasonal swings that are unrelated to the amount of work performed. This raises the question of subemployment and earnings adequacy of the self-employed worker.

Self-employment is a different class of activity than wage and salary employment. The self-employed rarely become unemployed. The fact that they are included in the denominator of the unemployment ratio may cause the rate to be artificially lower than it would be otherwise. In addition, there are important metro-nonmetro differences in the incidence of self-employment. 3/ Thus, the inclusion of the self-employed in current unemployment statistics creates serious comparability problems in area unemployment statistics.

The unique problems posed by the self-employed labor force need to be addressed if the unemployment rate is to be an unbiased measure of labor market performance. However, little data are available to evaluate the earnings adequacy or the stability of activities. The CPS, for example, collects data on self-employment only if that employment is a person's primary activity. In addition, except for the annual May supplement to the CPS, no data are available on multiple-job holders, many of whom hold one self-employed job. This lack of information further restricts one's ability to assess accurately the labor force experience of the self-employed.

Long-term unemployment.--The official unemployment rate (U-5), is supplemented by an estimate of the rate of long-term unemployment (U-1), defined as the number of persons unemployed for 15 weeks or longer as a percentage of the civilian labor force. This measure is intended to be an indicator of substantial economic hardship, the reasoning being that the longer a person is unemployed, the more severe are the financial constraints. Shorter periods of unemployment are assumed capable of being handled by savings, unemployment compensation, and other family members who are working.

The concept of this index, relating long-term unemployment to economic hardship, is relevant, but the index includes only part of the labor force experiencing economic hardship. There is little question that those included are in fact adversely affected by labor market conditions. However, those who can find only part-time work may also be enduring economic hardship as a result of long-term dislocations in the labor market. In addition, U-1 does not include discouraged workers who have stopped looking for work and have dropped out of the labor force. Many of those workers also face severe economic hardship.

Unemployment due to job loss.-- U-2 estimates the number of workers who lost their jobs as a percentage of the civilian labor force. This measure excludes those who quit their jobs, under the assumption that an involuntary job loss puts greater strain on one's finances than does voluntary unemployment. Generally, this measure is a fairly good indicator of tight versus loose labor market conditions. During periods of excess labor supply, the job loss rate

3/ This is demonstrated later in this report.

increases relative to the quit rate, while the converse is true during periods of tight labor supply. 4/

Household head unemployment.--U-3 estimated the number of unemployed heads of households as a percentage of all heads of households in the civilian labor force (before January 1978; see footnote 2, page 2). This measure is based on the assumption that the head of the household is the primary wage earner and, if unemployed, a more serious economic hardship is imposed on the household than the unemployment of other household members. The supposition that households are reliant on a single wage earner--the head of the household--for financial support is an outdated concept. The labor force participation rate of wives in stable (husband-wife) families increased from about 18 percent in 1940 to 40 percent in 1970 (5). The temporary unemployment of one worker in a multiple-earner household may not necessarily plunge the household into poverty, but the household's financial position may be strained since the income from another wage earner is generally not superfluous to a household's financial needs. This measure (U-3), although providing an accurate representation of the employment position of a subset of the labor force, cannot be interpreted as a proxy for the relative well-being of households.

Full-time job seekers.--U-4 estimates the number of unemployed persons seeking full-time jobs as a percentage of the full-time labor force. It includes those currently employed involuntarily on part-time schedules, but excludes part-time workers seeking full-time work. This measure is designed to provide an indication of labor market performance for those with a strong attachment to the labor force. It assumes that part-time workers have only a casual labor force commitment. This index attempts to measure conditions that may cause economic hardship, but the linkage between this index and economic hardship is not direct, and an important group, permanent part-time workers, is omitted from the index.

Subemployment measures.--The final two indices of labor market performance produced by BLS (U-6 and U-7) measure underemployment. They differ from the first five indices in that the definitions of the labor force and unemployment are broadened.

U-6 is the total number of full-time job seekers plus one-half the number of unemployed seeking part-time work plus one-half those working involuntarily part-time as a percentage of the entire labor force minus one-half the part-time labor force. The concept underlying this index is that at least some of those who can find only part-time work should be counted as unemployed and their loss of working time should be reflected in an unemployment measure. Similarly, some of those looking for part-time work are also counted, as are those who are, by choice, employed only part-time. The basic concept is a significant departure from the concepts underlying the preceding five indices. Where employment and unemployment were once strictly defined, U-6 introduces partial counting of some categories. The purpose of U-6 is to provide an estimate of underemployment using full-time worker equivalents; however, the judgment about what fraction of part-time workers to include is somewhat arbitrary.

The final series, U-7, begins with U-6 and adds discouraged workers to the unemployed and to the labor force. This is the most comprehensive of the seven measures. The rationale for including discouraged workers as part of the labor force is that if labor market conditions improve sufficiently, the discouraged workers will be drawn back into the active labor force. Reservations have been raised about the accuracy of discouraged worker data (6), since CPS collects insufficient information to determine whether the discouraged workers have a genuine or only casual interest in employment. Nevertheless, the inclusion of

4/ When unemployment was 4 percent in 1973, for example, 38.5 percent of unemployment was due to job loss while 16.2 percent was due to job quitting. When unemployment was 8.5 percent during the 1975 recession, 55.9 percent of unemployment resulted from job loss and only 10.6 percent resulted from job quitting. Those figures are annual averages from unpublished data of the BLS.

discouraged workers and persons working part-time involuntarily helps to alleviate many of the inconsistencies that pervade the other, less comprehensive indices.

Employment Status and Economic Well-Being

The measures of unemployment produced by BLS have no direct relationship to levels of economic hardship or economic well-being. It may be inferred that those areas or population groups with significantly higher levels of unemployment are less well off compared with areas or groups with very low unemployment levels. However, research has shown that this is not necessarily the case. Levitan and Taggart (9) found that unemployment rates in 1972 were nearly equal in nonmetro and metro areas, but that subemployment was lower in nonmetro areas, and that the level of economic hardship was significantly greater for nonmetro areas. Many factors in the definition of the labor force and employment have such a wide degree of variability that there is no assurance that the meaning of a particular level of unemployment is comparable between regions or groups. Some of the factors that contribute to this problem of interpretation are differences in the number of hours worked, in the level of worker discouragement, and in the types of industries and occupations available to the local labor force. All these factors have a direct bearing on earnings. However, neither earnings nor other relevant factors are explicitly included in the employment statistics.

An additional factor that makes the unemployment rate a poor indicator of economic well-being is the lack of information in unemployment statistics regarding the number of wage earners per family. Any evaluation of a family's economic well-being must be centered on the family's resources, not the resources of separate individuals in the family. As presently constructed, the unemployment rate does not provide an assessment of economic well-being, either for families or for individuals.

The definition of employment also leads to problems in interpreting employment and unemployment statistics as indicators of well-being. Members of the labor force are considered employed if they work 1 hour or more a week for pay or if they work 15 hours or more as unpaid workers in a family-run business. Thus, significant variation exists in hours worked and associated earnings levels of employed persons. Furthermore, the incomes of those who are employed for only a few hours per week and those who are unemployed but receive unemployment benefits will be quite similar.

STRUCTURAL DIFFERENCES BETWEEN METRO AND NONMETRO LABOR MARKETS AND EFFECTS ON UNEMPLOYMENT

Some of the employment characteristics that differentiate the larger, more urban-oriented metro labor markets from the smaller, nonmetro labor markets are the following: levels of self-employment, worker discouragement, involuntary part-time employment, types of industries and occupations available and the number of hours worked. Such differences are important, since they greatly affect the measurement and interpretation of labor force statistics.

The conceptual basis of employment measures are mainly derived from the urban-oriented labor economics literature. As a consequence, the differences between metro and nonmetro labor markets have rarely been addressed in evaluations of labor force statistics. 5/ Therefore, the potential impact on employment statistics of the factors to be evaluated is unknown. The following analysis demonstrates that nonmetro unemployment statistics are artificially low in comparison with metro statistics.

The data utilized in this section to illustrate the magnitude and extent of the metro, nonmetro differences are from several sources. In all cases, the most recently available data were used. The Survey of Income and Education, conducted in 1976, provides data on the self-

5/ The report of the last Presidential Commission (11) to appraise employment statistics contained no reference to these problems.

employed labor force. The balance of the data are from the Current Population Survey (CPS). The data pertaining to the industry and occupational composition of metro and nonmetro employment were obtained from a publication of the Bureau of the Census which used the CPS as the prime source of data (16).

Self-Employment

The incidence of self-employed workers is twice as great in nonmetro as in metro areas. In 1975, 8.9 percent of the metro labor force had self-employed income, compared with 17.4 percent of the nonmetro labor force (table 1). Self-employment was the sole source of earned income for roughly equivalent proportions of the self-employed in metro and nonmetro areas (58.9 percent and 61.4 percent, respectively). The remainder had wage earnings as well. However, as a proportion of the total labor force, those who had earnings from both self-employment and wage earnings were more prevalent in nonmetro areas (6.5 percent of the labor force) than in metro areas (3.7 percent). Similarly, those with only self-employment income constituted 10.9 percent of the nonmetro labor force and only 5.2 percent of the metro labor force.

Nonfarm and farm-related self-employment was more widespread in nonmetro areas. However, the differences in rates of self-employment were greater for the farm-related activities. In nonmetro areas, 8.5 percent of the labor force had self-employment income from farm activities, compared with only 1.2 percent in metro areas. In contrast, 9.8 percent of the nonmetro labor force had self-employment income from nonfarm activities, compared with 7.8 percent in metro areas.

Self-employment constitutes a different class of work than wage employment. Self-employed earnings, especially those from secondary activities, are generally low. 6/ Furthermore, unlike salaried jobs, unemployment among the self-employed normally requires that the enterprise fail. These factors, coupled with the concentration of self-employed in nonmetro areas, make the level of self-employment critical to the measurement and comparison of metro and nonmetro unemployment rates.

Nonmetro and metro unemployment rates for 1975, adjusted for the self-employment bias, are shown in table 2. The adjustment for the self-employment bias was computed as follows. First, those persons with only self-employment earnings were subtracted from the labor force; then, a proportion of the self-employed with other sources of earned income equivalent to the prevailing unemployment rate for wage and salary workers was added to the unemployed (this assumes that workers with more than one job experience the same rate of unemployment in their wage and salary activities as all wage and salary workers). The adjustment resulted in a 21-percent increase in the unemployment rate for nonmetro areas in 1975, but only a 10-percent increase in the metro unemployment rate (table 2). That kind of metro-nonmetro split applies across all census regions (Northeast, North Central, South, and West), with some regional variations. The unemployment rate in the nonmetro North Central region increased by 27 percent when adjusted for self-employment, while the metro rate increased by only 9 percent. The impact on the Northeast was much less because of lower levels of self-employment--an 8-percent increase in the metro unemployment rate and a 13-percent increase in the nonmetro unemployment rate.

Discouraged Workers

Discouraged workers are those who want to work but are not actively looking because they believe no jobs are available; they are disproportionately concentrated in nonmetro areas. Furthermore, the number of discouraged workers as a percentage of the local labor force exhibits greater variation in nonmetro areas than in metro areas (table 3).

The relatively higher rates of worker discouragement in nonmetro areas result from factors related to job information systems and the job search. Employment prospects are quickly disseminated if

6/ Average earnings from self-employment activities for those who also had wage and salary earnings in 1975 were $3,254 for metro residents and $2,800 for nonmetro residents. These data are from special tabulations of the Survey of Income and Education conducted by the U.S. Department of Commerce, Bureau of the Census.

information systems are efficient. Quick dissemination thus reduces the length of time a person is looking for a job; the person will either become employed or become discouraged and drop out of the labor force. If, on the other hand, information systems are inefficient, the person will become discouraged from a lack of employment prospects. 7/ Futhermore, since the nonmetro labor market is comprised of relatively few employers, the existence or nonexistence of employment opportunities is easily ascertained by the person looking for a job. There is no point in continuing the job search if no one is hiring.

Involuntary Part-Time Employment

Nonmetro workers tend to be involuntarily on part time schedules more than metro workers. The rate of involuntary part-time work during the 1974-75 recessionary period was at least 30 percent higher in nonmetro areas. 8/ Similarly, the nonmetro rate of involuntary part-time employment was 4.3 percent during the post-recession period of 1976-77, while the metro rate was 3.4 percent (table 3). Several factors contribute to this pattern. The three most important are shortages of materials because of the isolation of many nonmetro communities and their poor transportation links to distribution centers, an employment mix skewed toward industries with unstable labor requirements or seasonal variations in labor demand, and a higher proportion of nonmetro employment in industries sensitive to unfavorable weather conditions (for example, employment in construction).

Factors Affecting Earnings

Earnings of nonmetro males averaged about 20 percent lower than earnings for metro males in 1973 (table 4). 9/ Much of this earnings gap is often attributed to cost of living and associated wage differentials (2). By evaluating the industry and occupational composition of the work force, one can see that other factors contribute to the lower earnings of nonmetro workers. Nonmetro areas have a disproportionate share of low-wage industries and the work force is heavily weighted toward craft, operative, and other lower paying occupations. In contrast, the metro work force contains a disproportionate share of higher paying professional and managerial occupations.

Industry composition.--The literature of labor economics is replete with analyses of the importance of industry structure in determining wage rates and earnings (1, 13). Different wages are paid in different industries because of the industries' profit position, their degree of capitalization and unionization, the price elasticity of demand for their products, the skills they require of their workers, and the supply and demand of workers.

A comparison of mean annual earnings in table 4 shows that nonmetro males were paid only 79.8 percent of the metro level for 1973, or $2,252 less. This difference results in part from the dissimilar distribution of industry employment between the two areas. Most industries in which the earnings levels were higher than the national average (such as durable manufacturing; transportation, communication and other public utilities; wholesale trade; finance, insurance, and real estate; professional and related services; and public administration) were underrepresented in nonmetro areas (table 5). On the other hand, employment in agriculture, forestry, and fisheries, where earnings were the lowest, was confined chiefly to nonmetro areas.

Differences in industry composition alone, however, do not explain the total

7/ For a discussion of job search methods in the rural South see (12, pp. 62-75).

8/ The rates of involuntary part-time employment in 1975 were 3.7 percent in metro areas and 4.8 percent in nonmetro areas, about 31 percent greater in nonmetro areas. The nonmetro rate in 1974 was about 43 percent greater, 4.1 percent versus 2.9 percent. (Unpublished data, Bureau of Labor Statistics.)

9/ The analysis in this section is limited to males. The data are from the Current Population Survey (16). The CPS data on women for the kind of occupational and industry analysis presented in this section are not sufficiently reliable statistically to allow meaningful conclusions to be drawn.

metro-nonmetro difference in earnings. Table 4 further shows that nonmetro males earn less than metro males regardless of industry of employment. Nonmetro earnings vary between 71 and 99 percent of metro earnings for males employed in the same types of industries. To obtain an indication of the importance of industry mix in the metro-nonmetro earnings difference, the average nonmetro earnings were adjusted by applying actual, nonmetro industry earnings figures to the metro industry employment distribution. This calculation yielded a mean earnings level $354 above the actual level for nonmetro males, accounting for 16 percent of the metro-nonmetro earnings difference. This implies that the major proportion of the metro-nonmetro earnings differential is attributable to within-industry differences. Thus, although low-earnings industries are more prevalent in nonmetro areas, other factors also contribute to the metro-nonmetro earnings differential.

The current industry distribution between metro and nonmetro areas has evolved from numerous factors. Economies of scale and agglomeration, labor supply, transportation facilities, the distribution of natural resources, and the historical pattern of development all contributed to current industry location (15). The finance, insurance, and real estate component, for example, has a dual distribution. Establishments that cater to personal needs are distributed proportionally to the population, while those catering to the commercial sector are concentrated in urban centers. Thus, 31 percent of total U.S. male employment was located in nonmetro areas in 1974, but only 19 percent of male employment in the finance group was located in nonmetro areas (table 5). The locations of mining industries and agriculture, forestry, and fisheries industries are dependent upon the distribution of natural resources, which tend to be located in nonmetro areas. In addition, mining and agricultural operations often conflict with the urban environment. That conflict, coupled with the higher production costs near urban centers, tends to reduce the concentration of such industries in metro areas.

The employment distribution for some industriess is closely related to the pulation distribution. Approximately 31 percent of male retail trade employment, for example, is located in nonmetro areas, as is 31 percent of the population (16). This is one of the two industry groups (entertainment and recreation, is the other) for which the male employment distribution is not statistically different between metro and nonmetro areas (table 5).

Occupational composition.--Nonmetro areas, in addition to having proportionally more industries paying lower wages, have a higher proportion of low-paying occupations than metro areas. Occupations with lower than average earnings levels, including operatives, laborers, and farm occupations (table 6), constituted 41 percent of male employment in nonmetro areas and only 25 percent in metro areas (table 7). In contrast, male employment in occupations with above average earnings (such as professionals, managers and administrators, and sales workers) constituted 26 percent of male employment in nonmetro areas and over 37 percent in metro areas. Thus, some occupational groups receive comparatively similar earnings between metro and nonmetro areas (for example, nonmetro clerical workers earn 97 percent of the metro level), but the average for all occupations is less than 80 percent, which is partly a function of the differences in the distributions of occupations.

The information contained in tables 4 through 7 demonstrates that high-earnings industries and occupations are disproportionally distributed geographically, with low-earnings occupations and industries concentrated in nonmetro areas. One might conclude, therefore, that those industries requiring a more highly skilled labor force are located in metro areas, resulting in the concentration of higher. paying professional and managerial occupations in metro areas. Such a conclusion is not entirely correct. Examination of the within-industry distribution of employment by occupation reveals that some industries exhibit large metro-nonmetro differences in occupational composition, but others do not (table 8).

The distributional differences in industry employment by occupation seem to results, in part, from the tendency of central headquarters to be located in

larger urban areas which, by definition, are located in metro areas. Production facilities, on the other hand, which are not necessarily tied to the business-related amenities of the urban setting, are more often located in least-cost areas, which may be metro or nonmetro areas. The manufacturing and transportation industries, for example, have occupational distributions skewed so that professionals are concentrated in metro areas, while the craft and other occupations in these industries and in retail and wholesale trade are more heavily concentrated in nonmetro areas. Clerical occupations seem to mirror the distribution of professionals, most likely a result of the complementarity of their functions.

Some industries have similar occupational distributions between metro and nonmetro areas. Their distribution seems to be related to the types of functions performed. For example, public administration, personal services, finance, insurance, and real estate, professional and related services, and business and repair services are relatively homogeneous in their occupational distribution between metro and nonmetro areas. These industries provide the types of services that require close proximity between the provider of the service and the purchaser, thus requiring that all functions be performed locally.

Average weekly hours worked.--Nonmetro workers put in longer work-weeks than metro workers (table 9). The average workweek for full-time employees was nearly 2 hours longer for the nonmetro labor force in 1976 and 1977. The difference in hours worked for full-time nonagricultural workers was about 1 hour. This finding implies that hourly wage rates for similarly employed workers are even lower in nonmetro areas than the previously cited earnings data indicate.

Summary

The data presented in this section show that significant structural differences exist between metro and nonmetro areas. These differences suggest that nonmetro residents face different labor market conditions than exist in metro areas. Factors related to wages, such as industry and occupational composition, are beyond the control of the individual worker. The differences between metro and nonmetro areas are important for unemployment statistics. Labor force participation in nonmetro areas tends to be more responsive to economic conditions, as demonstrated by the variations in the levels of worker discouragement. The number of discouraged workers is not reflected in the unemployment rate, so that the statistics cannot accurately portray economic conditions in nonmetro areas.

Self-employment is more prevalent for nonmetro residents. However, as a part-time activity, self-employment earnings are low. Yet a significant proportion of the nonmetro labor force is self-employed in a secondary job. Workers who are laid off from or quit their primary jobs will not be picked up by unemployment statistics based on household data (such as CPS), since such workers will normally still be self-employed. This method of categorization is contrary to the conceptual basis of the unemployment rate.

Similar problems in measurement are encountered by including those engaged only in self-employment.

Finally, the usefulness of the unemployment rate as a barometer of relative levels of economic well-being for metro and nonmetro areas is reduced by differing levels of worker activity. The proportion of workers on part-time schedules for economic reasons and the average hours worked for the metro and nonmetro labor force results in a lower per worker return to employment for nonmetro workers.

IMPLICATIONS OF USING UNEMPLOYMENT STATISTICS TO ALLOCATE FUNDS FOR ECONOMIC AND HUMAN RESOURCE DEVELOPMENT PROGRAMS

Several Federal programs for economic and human resource development allocate funds to localities on the basis of unemployment statistics. The programs are Supplemental Unemployment Assistance, Countercyclical Revenue Sharing, employment and training programs under the Comprehensive Employment and Training Act, and Emergency Public Works. The allocation of funds among areas for these programs may not be entirely equitable. First, allocation formulas may not be

consistent with program objectives. Second, concepts and definitions underlying unemployment statistics are often inappropriate, as shown in previous sections of this report, resulting in regionally inconsistent estimates for metro and nonmetro areas. Third, the data used to estimate unemployment statistics for small areas may not be reliable.

The use of formulas to determine program eligibility and to aid in the funding distribution process is justified on the basis of the need for an unbiased means of allocating limited resources. To accomplish that objective, the formula elements must reflect program objectives and distribute funds among areas or groups according to degree of need as defined by the objectives.

Some funding formulas, do not appropriately reflect groups or areas that correspond to the targets established by the program legislation, but other formulas do seem appropriate (3). For example, unemployment statistics are used to allocate funds under the Supplemental Unemployment Assistance Program. The group targeted by this program is the unemployed; therefore, the use of unemployment levels to allocate funds represents a direct correspondence between the target groups and the allocative device.

The effectiveness of the allocative formulas used by programs also relies upon the accuracy of unemployment statistics. The accuracy of these statistics is dependent on two factors: the reliability of the data utilized to compute the statistic and the conceptual relevance of the labor market performance measure.

Employment data for nonmetro areas were evaluated in 1977 for comparability in detail, reliability, and breadth of information collected with national and metro area data (4). Nonmetro areas were found to have less information available, with less detail, and at a lower level of statistical reliability. Furthermore, local data on employment and unemployment are less reliable as the size of the area decreases (18). In addition, the Local Area Unemployment Statistics for the smaller counties and cities, utilized for the distribution of CETA funds suffer from acknowledged reliability problems (18). This holds particular significance for nonmetro areas which, by definition, have low population levels. Available evidence suggests that employment and unemployment data for nonmetro areas are inferior in quality and quantity to metro and national data.

Another problem confronting users of nonmetro data is posed by the requirements of confidentiality rules. In many cases, these rules limit the access of researchers, program analysts, and administrators to complete nonmetro data files. Thus, the evaluation of program performance and assessments of area needs is often severely hampered. Furthermore, detailed investigations of labor market behavior are also limited, which adversely affects the ability to clearly delineate factors affecting the consistent measurement of labor market performance in metro and nonmetro areas.

The conceptual problems present in current formulations of unemployment statistics further limit the effectiveness of program allocation formulas. An allocation formula may be conceptually correct and correspond to program objectives, but its operation will be biased if the concepts underlying the component statistics are inappropriate. The foregoing discussion of conceptual problems of unemployment statistics indicates that nonmetro areas are likely to be underfunded by programs whose allocations are based on unemployment-related formulas. There is a need not only to assess the appropriateness of funding allocators and the statistical reliability of employment and unemployment data, but also to modify the concepts underlying the definitions of employment and unemployment to compare labor market conditions in both metro and nonmetro areas.

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Table 1--Source of earned income for the metropolitan and nonmetropolitan labor forces, 1975

Region and type of area	Unit	Total employment 1/	Self-employed						
			Total	With wage and salary income			With only self-employment income		
				Total 2/	Nonfarm	Farm	Total 2/	Nonfarm	Farm
United States:									
Metro	Thou.	71,513	6,376	2,624	2,238	447	3,752	3,374	441
Percentage of:									
labor force	Pct.		8.9	3.7	3.1	.6	5.2	4.7	.6
Nonmetro	Thou.	31,109	5,414	2,028	1,076	1,054	3,386	1,960	1,593
Percentage of:									
labor force	Pct.		3/ 17.4	3/ 6.5	4/ 3.5	3/ 3.4	3/ 10.9	3/ 6.3	3/ 5.1
Northeast:									
Metro	Thou.	8,768	1,438	522	472	54	916	871	54
Percentage of:									
labor force	Pct.		7.7	2.8	2.5	.3	4.9	4.6	.3
Nonmetro	Thou.	4,771	533	204	160	46	329	254	82
Percentage of:									
labor force	Pct.		3/ 11.2	3/ 4.3	4/ 3.4	4/ 1.0	3/ 6.9	4/ 5.3	3/ 1.7
North Central:									
Metro	Thou.	8,700	1,530	647	509	155	883	735	163
Percentage of:									
labor force	Pct.		8.2	3.5	2.7	.8	4.7	3.9	.9
Nonmetro	Thou.	9,448	2,033	731	338	434	1,302	596	784
Percentage of:									
labor force	Pct.		3/ 21.5	3/ 7.7	3/ 3.6	3/ 4.6	3/ 13.8	3/ 6.3	3/ 8.3
South:									
Metro	Thou.	9,420	1,841	766	635	153	1,075	968	132
Percentage of:									
labor force	Pct.		9.5	3.9	3.3	.8	5.5	5.0	.7
Nonmetro	Thou.	2,845	2,140	804	393	460	1,336	826	576
Percentage of:									
labor force	Pct.		3/ 16.7	3/ 6.3	3.1	3/ 3.6	3/ 10.4	3/ 6.4	3/ 4.5
West:									
Metro	Thou.	4,625	1,567	689	623	85	878	800	92
Percentage of:									
labor force	Pct.		10.7	4.7	4.3	.6	6.0	5.5	.6
Nonmetro	Thou.	4,045	709	290	185	113	419	284	150
Percentage of:									
labor force	Pct.		3/ 17.5	3/ 7.2	4.6	3/ 2.8	3/ 10.4	3/ 7.0	3/ 3.7

1/ Total employment includes all those with earnings in 1975.
2/ Components may sum to more than total since some persons had both farm and nonfarm self-employment earnings.
3/ Statistically different from the metropolitan rate at the 95-percent confidence level.
4/ Statistically different from the metropolitan rate at the 90-percent confidence level.
Source: Survey of Income and Education, 1976, special tabulations, U.S. Department of Commerce, Bureau of the Census.

Table 2--Unemployment rates adjusted for self-employment by metro and nonmetro areas, 1975 1/

Region and type of area	Actual unemployment rate	Adjusted unemployment rate 2/	Change from actual rate
		Percent	
United States:			
Metro	8.6	9.5	10.4
Nonmetro	7.0	8.5	21.4
Northeast:			
Metro	10.1	10.9	7.9
Nonmetro	8.3	9.4	13.2
North Central:			
Metro	7.9	8.6	8.9
Nonmetro	5.5	7.0	27.3
South:			
Metro	7.5	8.3	10.6
Nonmetro	7.4	9.9	33.8
West:			
Metro	9.1	10.2	12.1
Nonmetro	7.3	8.8	20.5

1/ The adjusted unemployment rates were computed from the formula:

$$UR' = \frac{U + U'}{LF - SE}$$

Where:

UR' = the adjusted unemployment rate,
U = the number unemployed,
U' = ur(SE') = the estimated number of self-employed workers who are unemployed from a wage and salary job,
LF = the labor force,
SE = the number with only self-employment income,
SE' = the number with both self-employment and wage and salary income, and
$ur = \frac{U}{LF-SE}$ = the estimated unemployment rate for wage and salary workers.

2/ The adjusted rate is significantly different from the actual rate at the 95-percent confidence level.

Source: Survey of Income and Education, 1976, special tabulations, U.S. Department of Commerce, Bureau of the Census.

Table 3--Underemployment factors, metro and nonmetro areas

Year and quarter	Labor force	Discouraged workers		Part-time worker for economic reasons	
	Thousand		Percent	Thousand	Perc
Metro:					
1975--					
I	63,580	690	1.1	2,416	3.
II	64,136	746	1.2	2,477	3.
III	64,877	778	1.2	2,531	3.
IV	64,313	711	1.1	2,079	3.
1976--					
I	64,488	776	1.2	2,169	3.
II	65,582	649	1.0	2,214	3.
III	66,429	514	.8	2,453	3.
IV	65,835	638	1.0	2,144	3.
1977--					
I	65,915	682	1.0	2,253	3.
II	66,837	633	.9	2,168	3.
III	67,856	665	1.0	2,463	3.
IV	67,769	584	.9	2,014	3.
Nonmetro:					
1975--					
I	27,572	455	1/ 1.7	1,387	1/ 5.
II	28,247	380	1/ 1.3	1,401	1/ 5.
III	29,110	364	1.3	1,425	1/ 4.
IV	28,616	347	1.2	1,176	1/ 4.
1976--					
I	28,370	347	1.2	1,269	1/ 4.
II	28,808	307	1.1	1,232	1/ 4.
III	29,855	262	.9	1,382	1/ 4.
IV	29,726	323	1/ 1.1	1,298	1/ 4.
1977--					
I	29,357	352	2/ 1.2	1,237	1/ 4.
II	30,215	331	2/ 1.1	1,324	1/ 4.
III	30,834	368	2/ 1.2	1,430	1/ 4.
IV	30,822	352	1/ 1.1	1,231	1/ 4.

1/ Statistically different from the metro rate at the 95-percent confi level.

2/ Statistically different from the metro rate at the 90-percent confi level.

Source: Unpublished data, U.S. Department of Labor, Bureau of Labor Statistics.

Table 4--Mean annual industry earnings of metro and nonmetro male workers, 1973

Industry	United States	Metro	Nonmetro	Nonmetro as percentage of metro
	--------Dollars----------			Percent
Average, all industries	10,459	11,164	8,912	79.8
Agriculture, forestry, and fisheries	6,997	7,046	6,977	99.0
Mining	10,789	12,313	9,887	80.3
Construction	10,199	11,045	8,720	78.9
Durable manufacturing	10,886	11,561	9,200	79.6
Nondurable manufacturing	10,753	11,536	9,172	79.5
Transportation, communications, and other public utilities	11,272	11,864	9,680	81.6
Wholesale trade	11,738	12,192	9,929	81.4
Retail trade	8,052	8,295	7,511	90.5
Finance, insurance, and real estate	13,238	13,490	12,183	90.3
Business and repair services	9,026	9,517	7,380	77.5
Personal services	7,863	7,929	7,677	96.8
Entertainment and recreation	7,902	8,439	6,014	71.3
Professional and related services	12,551	12,551	11,143	88.8
Public administration	11,970	12,623	10,084	79.9

Source: (16).

Table 5--Employment by industry, metro and nonmetro males, 1974

Industry	U.S. employment 1/	Metro		Nonmetro		
		Employment	Distribution 1/	Employment	Distribution 1/	Nonmetro as percentage of U.S. employment 1/
	Thousands		Percent	Thousands	Percent	
Total employment	51,681	35,522	100.0	16,159	100.0	31.3
Agriculture, forestry, and fisheries	2,959	767	2.2	2,191	2/ 13.6	74.1
Mining	593	220	.6	373	2/ 2.3	62.9
Construction	4,906	3,123	8.8	1,782	2/ 11.0	36.3
Durable manufacturing	9,528	6,797	19.1	2,730	2/ 16.9	28.7
Nondurable manufacturing	5,278	3,527	9.9	1,751	2/ 10.8	33.2
Transportation, communication, and other public utilities	4,448	3,247	9.1	1,201	2/ 7.4	27.0
Wholesale trade	2,597	2,080	5.9	517	2/ 3.2	19.9
Retail trade	7,041	4,873	13.7	2,167	13.4	30.8
Finance, insurance, and real estate	2,212	1,789	5.0	422	3/ 2.6	19.1
Business and repair services	1,994	1,537	4.3	456	2/ 2.8	22.8
Personal service	711	523	1.5	188	2/ 1.2	26.4
Entertainment and recreation	474	369	1.0	105	.7	22.2
Professional and related services	5,721	4,268	12.0	1,453	2/ 9.0	25.4
Public administration	3,221	2,399	6.8	822	2/ 5.1	25.5

1/ Elements may not add to totals due to rounding
2/ Significantly different from the metro distribution at the 95-percent confidence level.
3/ Significantly different from the metro distribution at the 90-percent confidence level.

Source: (16).

Table 6--Mean annual earnings for metro and nonmetro males, by occupation, 1973

Occupation	United States	Metro	Nonmetro	Nonmetro as percentage of Metro
	--------Dollars----------			Percent
Average, all occupations	10,459	11,164	8,912	79.8
Professional, technical, and kindred workers	14,583	15,014	13,090	87.2
Managers and administrators	15,336	16,236	12,806	78.8
Sales workers	11,394	12,032	9,330	77.5
Clerical workers	8,870	8,923	8,671	97.2
Craftsmen and kindred workers	10,273	10,708	9,359	87.4
Operatives, except transportation	8,077	8,333	7,603	91.2
Transportation equipment operatives	9,017	9,495	8,118	85.5
Laborers, except farm	6,043	6,502	6,145	78.4
Farmers and farm managers	8,867	9,231	8,799	95.3
Farm laborers and supervisors	3,936	5,002	3,556	71.1
Service workers, except private household	6,483	6,741	5,301	78.6
Private household workers	1/	1/	1/	1/

1/ The base was of insufficient size to compute mean earnings for this group.

Source: (16).

Table 7--Employment by occupation for metro and nonmetro males, 1974

Occupation	U.S. employment	Metro		Nonmetro		Nonmetro as percentage of total metro employment
		Employment	Distribution	Employment	Distribution	
	Thousands		Percent	Thousand	Percent	
Total	51,681	35,522	100.0	16,159	100.0	31.3
Professional, technical, and kindred workers	7,175	5,578	15.7	1,597	1/ 9.9	22.3
Managers and administrators	7,200	5,315	15.0	1,885	1/ 11.7	26.2
Sales workers	3,152	2,410	6.8	742	1/ 4.6	23.5
Clerical workers	3,414	2,703	7.6	711	1/ 4.5	20.8
Craftsmen and kindred workers	10,867	7,374	20.8	2,504	2/ 21.7	32.2
Operatives, except transportation	6,309	4,107	11.6	2,202	1/ 13.6	34.9
Transportation equipment operatives	3,036	1,978	5.6	1,058	1/ 6.5	34.8
Laborers, except farm	3,825	2,439	6.9	1,386	1/ 8.6	36.2
Farmers and farm managers	1,523	239	.7	1,284	1/ 8.0	84.3
Farm laborers and supervisors	943	242	.7	701	1/ 4.3	74.3
Service workers, except private household	4,212	3,130	8.8	1,081	1/ 6.7	25.7
Private household workers	25	18	.1	7	3/	28.0

1/ Significantly different from the metropolitan distribution at the 95-percent confidence level.
2/ Significantly different from the metropolitan distribution at the 90-percent confidence level.
3/ Number rounds to zero.

Source: (16).

Table 8--Composition of industry employment by occupation and residence, males 1973

Industry and occupation	Employment				Nonmetro as a percentage of total
	Metro		Nonmetro		
	Thousands	Percent	Thousands	Percent	
Construction:					
Total employment	3,066	100	1,759	100	36.46
Professional	531	17.32	215	12.22	28.82
Clerical	58	1.90	30	1.71	34.48
Craft	1,946	63.47	1,112	63.22	36.35
Other	531	17.32	401	22.79	43.03
Durable manufacturing:					
Total employment	6,747	100	2,701	100	28.59
Professsional	1,528	22.65	359	13.29	1/ 19.02
Clerical	518	7.68	180	6.66	25.82
Craft	4,029	59.72	1,646	61.61	29.00
Other	672	9.96	516	19.10	1/ 43.40
Nondurable manufacturing:					
Total employment	3,488	100	1,734	100	33.21
Professional	850	24.37	243	14.01	1/ 22.21
Clerical	460	13.19	106	6.11	1/ 18.72
Craft	1,669	47.85	1,032	59.52	1/ 38.19
Other	508	14.56	351	20.20	1/ 40.86
Transportation, communication and other public utilities:					
Total employment	3,214	100	1,194	100	27.09
Professional	609	18.95	152	12.73	1/ 19.97
Clerical	361	11.23	96	8.04	2/ 20.96
Craft	1,011	31.46	404	33.85	28.55
Other	1,232	38.33	543	45.40	2/ 30.59
Wholesale trade:					
Total employment	2,052	100	514	100	20.03
Professional	549	26.75	123	23.93	18.30
Clerical	763	37.18	137	26.56	1/ 15.22
Craft	312	15.20	89	17.32	22.25
Other	427	20.81	165	32.10	1/ 27.82
Retail trade:					
Total employment	4,700	100	2,123	100	31.12
Professional	1,511	32.15	666	31.37	30.59
Clerical	986	20.98	433	20.40	30.51
Craft	886	18.85	559	26.33	1/ 38.69
Other	1,317	28.05	464	21.80	1/ 21.80
Finance, insurance, and real estate:					
Total employment	1,768	100	422	100	19.27
Professional	679	38.40	171	40.52	20.11
Clerical	856	48.93	207	49.05	19.49
Craft	55	3.11	12	2.84	17.91
Other	178	10.07	33	7.82	15.63

Continued--

Table 8--Composition of industry employment by occupation and residence, males 1973--Continued

Industry and occupation	Employment				Nonmetro as a percentage of total
	Metro		Nonmetro		
	Thousands	Percent	Thousands	Percent	
Business and repair services:					
Total employment	1,499	100	477	100	19.27
Professional	421	28.98	74	16.55	20.11
Clerical	139	9.27	24	5.37	19.49
Craft	676	45.10	286	63.98	17.91
Other	263	17.55	63	14.09	15.63
Personal services:					
Total employment	514	100	184	100	26.36
Professonal	140	27.24	68	36.96	36.69
Clerical	31	6.03	6	3.26	16.22
Craft	90	17.51	27	14.67	23.28
Other	254	49.42	83	45.11	24.63
Professional and related services:					
Total employment	4,181	100	1,433	100	24.53
Professional	2,872	68.69	996	69.50	25.75
Clerical	206	4.93	42	2.93	16.87
Craft	251	6.00	92	6.49	26.82
Other	851	20.59	302	21.07	26.19
Public administration:					
Total employment	2,360	100	818	100	25.74
Professional	798	33.81	271	33.31	25.35
Clerical	578	24.49	154	18.83	1/ 21.03
Craft	243	10.29	78	9.54	24.30
Other	742	31.44	315	38.51	29.83

1/ Percentage of nonmetro occupation is significantly different from the percentage distribution of the industry at the 95-percent confidence level.

2/ Percentage of nonmetro occupation is significantly different from the percentage distribution of the industry at the 90-percent confidence level.

Source: (16).

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Table 9--Average weekly hours of work for metro and nonmetro workers

Employment category	1976			1977		
	Total labor force	Nonagricultural workers		Total labor force	Nonagricultural workers	
		Total 1/	Wage and salary		Total 1/	Wage and salary
	Hours					
Metro:						
Total at work	38.3	38.3	38.0	38.5	38.4	38.2
Full-time	43.9	43.7	43.3	44.0	43.9	43.5
Part-time for economic reason	21.3	21.3	21.5	21.3	21.4	21.5
Part-time for non-economic reason	21.4	21.4	21.6	21.3	21.3	21.6
Nonmetro:						
Total at work	39.3	38.7	38.3	39.4	38.8	38.4
Full-time	45.8	44.8	44.1	45.9	45.0	44.3
Part-time for economic reason	21.0	21.2	21.4	21.1	21.3	21.5
Part-time for non-economic reason	20.8	21.1	21.3	20.7	20.8	21.1

1/ Includes self-employed and unpaid family workers.

Source: Unpublished data, U.S. Department of Labor, Bureau of Labor Statistics.